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Europäisches  
Patentamt

Zweigstelle  
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abteilung

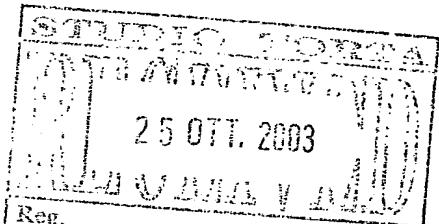
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*RR + opinion (EESR)*



Datum/Date  
28.10.03

Zeichen/Ref./Réf. Case E-1668/03	Anmeldung Nr./Application No./Demande n°./Patent Nr./Patent No./Brevet n°. 03425315.3-2421-
Anmelder/Applicant/Demandeur/Patentinhaber/Proprietor/Titulaire Umbra Cuscinetti S.p.A.	

## COMMUNICATION

The European Patent Office herewith transmits as an enclosure the European search report for the above-mentioned European patent application.

If applicable, copies of the documents cited in the European search report are attached.

Additional set(s) of copies of the documents cited in the European search report is (are) enclosed as well.

The following specifications given by the applicant have been approved by the Search Division:

abstract  title

The abstract was modified by the Search Division and the definitive text is attached to this communication.

The following figure will be published together with the abstract: 1



## REFUND OF THE SEARCH FEE

If applicable under Article 10 Rules relating to fees, a separate communication from the Receiving Section on the refund of the search fee will be sent later.



DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	US 6 276 225 B1 (NISHIDE TETSUHIRO ET AL) 21 August 2001 (2001-08-21)	1-6,8-10	F16H25/22
Y	* column 4, line 26 - column 6, line 43; figures 1,4-6 *	7	F16J15/32 //F16J15:32
Y	---		
Y	US 6 557 857 B1 (GOODMAN JAMES R) 6 May 2003 (2003-05-06)	7	
A	* column 5, line 1 - column 8, line 5; claims 1,3; figures 1,8-14 *	1,4-6	
Y	---		
X	PATENT ABSTRACTS OF JAPAN vol. 018, no. 227 (M-1597), 25 April 1994 (1994-04-25) & JP 06 017898 A (NTN CORP), 25 January 1994 (1994-01-25)	1-6,10	
Y	* abstract *	7	
Y	---		
Y	PATENT ABSTRACTS OF JAPAN vol. 1999, no. 10, 31 August 1999 (1999-08-31) & JP 11 132305 A (NTN CORP), 21 May 1999 (1999-05-21)	1-6	
Y	* abstract *	7	
Y	---		
Y	GB 544 732 A (ANTHONY PROCTER;GEORGE ANGUS AND COMPANY LTD) 24 April 1942 (1942-04-24)	1-6	F16H
Y	* the whole document *		F16J
A	---		
A	US 5 303 936 A (KUROKI TOSHIHIKO) 19 April 1994 (1994-04-19)	1	
A	* the whole document *		
Y	---		
The present search report has been drawn up for all claims			
2	Place of search	Date of completion of the search	Examiner
	MUNICH	21 October 2003	Martinvalet, C-I
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document			
T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 03 42 5315

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

21-10-2003

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
US 6276225	B1	21-08-2001	JP GB	2000145915 A 2344625 A ,B	26-05-2000 14-06-2000	
US 6557857	B1	06-05-2003	WO	9953226 A1	21-10-1999	
JP 06017898	A	25-01-1994		NONE		
JP 11132305	A	21-05-1999		NONE		
GB 544732	A	24-04-1942		NONE		
US 5303936	A	19-04-1994	JP DE	4219104 A 4042082 A1	10-08-1992 11-07-1991	



This application is covered by the extended European search report pilot project at present running within the European Patent Office, applied to all European patent applications filed as first filing and searched on or after 01.07.03. Under this project the EPO issues together with the search report an opinion on whether the application and the invention to which it relates meet the requirements of the EPC. This non-binding opinion is issued free of charge as a service. This opinion may be used as the basis for an informed decision as to whether it is desired to pursue the application further or not.

For further details of this pilot project, the applicant's attention is directed to the Official Journal edition 5/2003. If any further immediate questions or comments arise the EPO Customer Services: +31-70-340 4500 or +49-89-2399 2828 can be contacted.

**The attached opinion reveals that the application or the invention to which it relates appear not to meet the requirements of the Convention** (see comments on enclosed Form 2906).

If the applicant wishes to continue with this application the examination fee must be paid. Where appropriate amendments can be filed to address the objections raised in the opinion, thus shortening the overall procedure. If no amendments are filed, the opinion will be re-issued as the first official communication under Article 96(2) and Rule 51(2) EPC.

If the examination fee has already been paid and the right to the communication under Article 96(1) EPC has been waived for this application, the first official communication under Article 96(2) and Rule 51(2) EPC will be issued promptly.



The examination is being carried out on the following application documents:

Description, pages: 1-5 as originally filed  
Claims, No.: 1-10 as originally filed  
Drawings, sheets: 1/3-3/3 as originally filed

The following documents are referred to in this communication; the numbering will be adhered to in the rest of the procedure:

D1: US 6 276 225-B1 (NISHIDE TETSUHIRO ET AL)  
D2: US 6 557 857-B1 (GOODMAN JAMES R)

### **Novelty**

#### **◆ independent claim 1**

Document D1 discloses (the references in parentheses applying to this document):

a ball screw comprising a shaft (11) having a given longitudinal axis and an external thread, a spiral casing (13) mounted coaxially with said shaft, at least one set of balls interposed between the shaft and the casing, and two seals (20) fitted coaxially with said axis between the shaft and the casing, to define, together with the shaft and the casing, a chamber for containing lubricant, and wherein each seal comprises an annular member (21) made of a first material having a first coefficient of thermal expansion and at least one insert (22) located inside said annular member and made of a second material having a second coefficient of thermal expansion lower than said first coefficient.

The subject-matter of claim 1 is therefore not new (Article 54(1) and (2) EPC).

#### **◆ dependent claims 2-6, 8-10**

Document D1 shows also all the features of claims 2-6, and 8-10.

The subject-matters of claims 2-6, and 8-10 are therefore not new (Article 54(1) and (2) EPC).



## Inventive step

### ◆ dependent claim 7

The subject-matter of dependent claim 7 cannot be considered as involving an inventive step (Article 52(1) and 56 EPC) for the following reason:

Document D1 which is considered to represent the most relevant state of the art discloses a ball screw assembly from which the subject-matter of claim 7 differs in that each seal comprises an O-ring housed in an annular recess opening outwards at a surface coaxial with the axis of the shaft.

The technical problem to be solved by the present invention may therefore be regarded as that of preventing a fluid leakage due to thermal deformation of the seal.

The radial seal assembly described in document D2 contains also an O-ring housed in an annular recess of the seal for this purpose (see the "energizer" (30) col. 7 lin. 62 to col. 8 lin. 5).

Therefore it will be obvious for the skilled person to apply the same solution for the seal of the ballscrew of document D1.

## Further prosecution

It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 29(1) EPC. The applicant should also indicate in the letter of reply the difference of the subject-matter of the new claim vis-à-vis the state of the art and the significance thereof.

When filing amended claims the applicant should at the same time bring the description into conformity with the amended claims.

To meet the requirements of Rule 27(1)(b) EPC, documents D1 and D2 should be identified in the description and its relevant contents should be indicated. The applicant should ensure that it is clear from the description which features of the subject-matter of independent claim 1 is known from the document D1.

Care should be taken during revision, especially of the introductory portion and any statements of problem or advantage, not to add subject-matter which extends beyond the content of the application as originally filed (Article 123(2) EPC).

In order to facilitate the examination of the conformity of the amended application with



the requirements of Article 123(2) EPC, the applicant is requested to clearly identify the amendments carried out, irrespective of whether they concern amendments by addition, replacement or deletion, and to indicate the passages of the application as filed on which these amendments are based.

If the applicant regards it as appropriate these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.